METADISCOURSE AND ESP READING COMPREHENSION: AN EXPLORATORY STUDY

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Metadiscourse and ESP reading comprehension: An exploratory study

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Abstract

Recent trends in the study of written texts reflect a growing interest in interaction between readers and writers. Several studies have focused on metadiscourse as an important interactive feature that is believed to facilitate the reading process. While several authors have studied metadiscourse from the descriptive and contrastive perspectives, there is a lack of experimental work on this topic. This paper describes exploratory classroom research with a group of Italian university students to gain further insight into the effect of metadiscourse on ESP reading comprehension. Two groups of students read selected extracts from two versions of the same text differing according to quantity and type of metadiscourse. Each group then took a reading comprehension test and their mean scores were compared. The findings suggest that a more pronounced use of metadiscourse may be associated with improved comprehension in some cases. A post-reading questionnaire showed that students had substantially no awareness of metadiscourse. The results provide useful indications for further research and also highlight the need for targeted instruction on metadiscourse in ESP reading courses.
Keywords: metadiscourse, reading comprehension, reading instruction, reading process, second language learning, ESP, discourse analysis

Introduction

The notion of reading as an interactive process of bottom-up, top-down and metacognitive skills (Dubin and Bycina, 1991; Shih, 1992; Vacca *et al*., 1995) is now well consolidated in both first language (L1) and second language (L2) instructional frameworks. This approach is particularly effective in teaching reading skills for academic or special purposes. In addition to decoding meaning from print with bottom-up skills, successful readers implement top-down skills to activate their prior knowledge of content and use textual cues to help them cope with new information. Parallel to this interactive process between reader and content, there is also another important type of interaction: the one between reader and writer. This "dialogue" is known as metadiscourse, defined by Vande Kopple (1997: 2) as "discourse that people use not to expand referential material, but to help their readers connect, organize, interpret, evaluate and develop attitudes towards that material."

Several studies have discussed the positive effects of the presence of metadiscourse in texts. With reference to Halliday's (1985b) metafunctional theory of language, on the *interpersonal* level, Schiffrin (1980: 231, as cited in Hyland, 2000: 109) and Crismore (1989) both point out that metadiscourse allows written texts to take on some features of spoken language (e.g., personal pronouns to establish an "I-you" relationship), and thus become more "reader-friendly". On the *textual* level, Crismore & Farnsworth (1990) and Crismore (1989) note that the discourse structuring functions of metadiscourse guide readers through a text and help them to organize content as they read, thus fostering global comprehension. Crismore further suggests that metadiscourse can promote critical thinking as readers are able to formulate their own opinions and compare them to those of the writer.

Other benefits of metadiscourse derive from its use of explanatory and persuasive elements (e.g., code glosses, attitude markers, evidentials) which attest to its key rhetorical function (Crismore, 1989; Hyland, 1999; Hyland 2000). In fact, writers use these devices to produce a desired effect, depending on their underlying purposes and perception of readers' expectations. For example, in expert to non-expert communication (e.g., textbooks) metadiscourse helps to present information in a clear, convincing and interesting way in an effort to promote acceptance and understanding, as well as reader-writer solidarity. It is also an important persuasive resource used to influence readers' reactions to texts according to the values and established conventions of a given discourse community.

In L2 instructional contexts, it has been posited that an awareness of metadiscourse is particularly useful in helping non-native speakers of English with the difficult task of grasping the writer's stance when reading challenging authentic materials. Bruce (1989: 2) suggests that this ability enables non-native learners to better follow the writer's line of reasoning in argumentative texts. Vande Kopple (1997: 14) observes that specific instruction on metadiscourse can be useful to help L2 readers learn to distinguish factual content from the writer's commentary.

Metadiscourse has been investigated from a descriptive standpoint and has been shown to be a prominent feature of various types academic discourse. These include school textbooks (Crismore, 1989; Crismore and Farnsworth 1990), university textbooks (Hyland, 2000; Bondi, 1999) and doctoral dissertations (Bunton, 1999). It has also been studied comparatively in order to understand differences in usage across cultures (Mauranen, 1993; Valero-Garces, 1996). Some work has focused on metadiscourse in student writing. Intaraprawat & Steffensen (1995) analyzed ESL university students' essays and concluded that good writers used a greater variety of metadiscourse than poor writers. Steffensen & Cheng (1996) conducted an experiment to investigate the effect of targeted instruction on metadiscourse on the writing abilities of native-speaker university students. An experimental group that had been taught the form, function and purpose of metadiscourse learned to use it effectively and produce compositions that earned significantly higher scores than those of a control group, which had received no instruction on metadiscourse. However, little experimental work has been done on the effects of metadiscourse on reading comprehension. Two studies have been undertaken with native speakers of English. Crismore (1989) attempted to determine whether including informational and attitudinal metadiscourse in passages of social studies textbooks would influence reading retention (among

other factors) with sixth graders. She found that there was some improvement in retention after reading passages with both types of metadiscourse, but only with certain participant subgroups. In a later study with ninth graders, Crismore and Vande Kopple (1997) investigated the effects of hedging (e.g., metadiscursive devices that express the writer's commitment to the truth value of the proposition being made) on reading retention. Experimental groups read passages from both social studies and science textbooks containing various types of hedging, while a control group read corresponding passages in which all hedging had been removed. Even if other factors (e.g., gender, subject matter and type/position of hedging) were also found to have an influence on retention scores, the authors propose that, in general, students learned more from reading science and social studies passages with hedging included.

Although the findings of these studies do not provide clear evidence that the presence of metadiscourse in a text improves comprehension, they do suggest that it has a facilitating role, and is therefore a topic that merits further study. The purpose of this action research was to gain more insight into the influence of metadiscourse on reading comprehension levels in an L2 setting: a group of Italian ESP students at the Faculty of Economics of the University of Florence (Italy). The research question is: Are these L2 readers able to understand a text containing more metadiscourse better than one with less? The study was undertaken in two phases:

1) a small-scale experiment to reveal differences in the comprehension levels of two groups that had read corresponding extracts of a long version of a text (with more metadiscourse) vs. a short version (with less metadiscourse)
2) a comparison of responses on a follow-up questionnaire administered after the reading comprehension test to determine student perceptions of the level of difficulty of the two text treatments and their degree of awareness of metadiscourse.

Methodology

Materials

The two texts utilised for this study come from the works of the great nineteenth-century British economist Alfred Marshall. Groenenwegen (1995) notes that Marshall's theories have had a major influence on economic thought. His works are considered classics and are still widely read by students of economics. *Principles of Economics* was first published in 1890 in the form of a main treatise, while an abridged version, *Elements of Economics of Industry*, was later published in 1892. The availability of two authentic versions of the same text by the same author presents a rather unique opportunity to investigate metadiscourse without having to artificially manipulate texts. Marshall himself indicated that in *Elements of Economics of Industry*, he had sought to adapt *Principles of Economics* to the needs of less expert student readers, primarily by simplifying the more complex theoretical concepts and by eliminating what he considered to be minor points. However, an analysis of the two texts by Del Lungo (1998) points out that are also important metadiscursive differences. More specifically, she found that the abridged version contains less metadiscourse. This study builds on these findings, with an underlying hypothesis that the long version *(Principles of Economics)* is actually more comprehensible to L2 readers

than the abridged version *(Elements of Economics in Industry)* due to the presence of more metadiscourse.

Three corresponding passages of *Principles of Economics* and *Elements of Economics of Industry* (hereinafter referred to as *Principles* and *Elements*, respectively) were selected for the experiment. The extracts, ranging from 120 to 254 words, were taken from three different corresponding parts of the two texts (Books I, IV and V) in order to obtain a sufficiently representative sample. The extracts from Book I (1a and 1b) introduce the relationship between the incentive to earn money and the level of individual wealth. The extracts from Book IV (2a and 2b) explain how human population growth is related to the production of wealth. The extracts from Book V (3a and 3b) illustrate concept of economic utility. Minor adjustments were made to render the passages more suitable for reading as isolated paragraphs. In the extract from Book V of *Principles,* I removed a lengthy footnote to the main text.

The extracts were then analysed in terms of the quality and quantity of metadiscourse found in them (see Appendix A). The analysis was based on Hyland's taxonomy (Hyland, 2000: 111), which identifies various functional categories of metadiscourse found in university level textbooks as follows:

textual metadiscourse:
- *frame markers* that signal or preview a discourse act or text phase
- *code glosses* that help readers to better understand a particular text element
- *logical connectives* to express relations between clauses
- *endophoric markers* that refer to other parts of the text
- *evidentials* that refer to other information sources

interpersonal metadiscourse:
- *boosters* that express communicative force or the writer's certainty
- *hedges* that modify the writer's commitment to the proposition
- *person markers* or first person pronouns indicating the writer's presence
- *attitude markers* to express the writer's stance towards content
- *relational markers* to create a relationship with the reader

Table 1 illustrates the metadiscursive differences between the two text treatments. Three of Hyland's categories do not appear in the extracts (evidentials, relation markers, and attitude markers), which is not surprising since they tend to be more frequent in strongly persuasive genres, such as research articles (Hyland, 1999). As can be seen, there is some overlapping of categories (e.g., frame markers can also include person markers, hedges and boosters).

Table 1: Qualitative analysis of metadiscourse in *Principals vs. Elements*

Principals	***Elements***
Extract 1a – Frame marker + booster *must* + person marker (*We must take account of the fact...)*	Extract 1b
Extract 2a – Code gloss to define *the production of wealth* (*The production of wealth is but a means....)* – Logical connective *(But man himself...)* – Frame marker + endophoric marker *(...and this and the following two chapters will be given to...)* – Code gloss to expand on *the supply of labour (...i.e., the growth of population...)* – Code gloss to further explain *two opposing forces (One the one hand....)*	Extract 2b Frame marker + hedging verb *(...it seems best to make at this stage some study...)*
Extract 3a – Frame marker + person marker *(The first difficulty to be cleared up in our...)* – Frame marker + booster *will* (*It will be well to begin...)* – Logical connective + person marker *(Let us then take the case...)* – Frame marker + person marker + hedge *may (This illustration may serve to keep before us...)*	Extract 3b – Frame marker + person marker *(Let us suppose...)* – Frame marker *(This case illustrates the way...)*

Table 2 summarizes the metadiscursive differences between the two text treatments in terms of frequency. The analysis confirms Del Lungo's previous findings that there is the greater amount and variety of metadiscourse in *Principles* as compared to *Elements*. On a general level, it is also in line with Hyland's (1999) study of metadiscourse in university textbooks, showing that textual metadiscourse is more prominent than interpersonal metadiscourse (14 vs. 9 items, respectively).[1]

Table 2: Quantitative analysis of metadiscourse in *Principles* vs. *Elements*

Metadiscursive categories	***Principles***	***Elements***
Textual		
Frame markers	5	3
Code glosses	3	
Logical connectives	2	
Endophoric markers	1	
Interpersonal		
Person markers	4	1
Hedges	1	1
Boosters	2	
Total	**18**	**5**

Participants and administration procedures

The test and questionnaire were administered to two large sections (ranging from 100-120 students) of the ESP reading course at the Faculty of Economics. From those sections, two groups of 55 participants were randomly selected (approximately every other test). Students can enroll in the course starting only from the third year of their degree program. Therefore, they come to the course with quite a lot of content-specific background knowledge acquired from their native language coursework. The English proficiency level of the students ranged from intermediate to upper intermediate. The experiment was conducted towards the end of the semester-long course to prepare students for a multiple-choice examination on economics texts. Thus, the students had already been introduced to the multiple-choice format, as well as the English vocabulary and type of questions used in the test. In fact, the reading course focused on global reading strategies (e.g., identifying the main points, inferring meanings and recognising discourse functions) and vocabulary building.

Group 1 read the three extracts from *Principles* and then took a reading comprehension test and completed a questionnaire. Group 2 instead read the three *Elements* extracts, took the same reading comprehension test and completed the same questionnaire. Both the test and the questionnaire were administered during regular class periods with no time limit.

Instruments

A reading comprehension test was developed for the text treatments of this experiment (see Appendix B), consisting of four multiple-choice questions, each with four options. The first question was of a global nature referring to the content of all three extracts. The second, third and fourth questions focused instead on the individual content of extracts #1, #2, and #3, respectively. Each question was weighted 1 point.

A five-item post-reading questionnaire (see Appendix C) was also designed specifically for this study. Unlike the reading comprehension test, the questionnaire was formulated in Italian (the native language of the students) in an attempt to avoid any failure to understand or correctly interpret the questions. Two questions involved students' evaluation of the levels of difficulty

and comprehension of the two texts, while the other three were designed to measure students' awareness of metadiscourse. Each item offered a closed response format with four options. Scores ranged from four points for the option indicating the highest level of understanding and awareness of metadiscourse to one point for the lowest.

Scoring

For the reading comprehension test, mean scores were calculated globally (minimum 0/maximum 4) and for also each individual question (1 point for the correct response vs. 0 points for an incorrect response). It seemed useful to compare responses to individual items since they were not all of the same nature (e.g., global vs. individual focus) and since selected extracts contained varying types of metadiscourse. The mean score of each questionnaire item was also calculated.

All the means were then compared by using a two-tailed *t*-test, with a .05 level of significance required to reject the null hypothesis that there would be no statistically significant differences between the two treatment groups.

Results

Table 3 illustrates the results of the *t*-test analyses for the reading comprehension test. Out of a maximum score of 4, the mean scores were 2.98 for the *Principles* group and 2.71 for the *Elements* group. The difference between the two means was not statistically significant. However, at the level of individual questions, two significant differences were found. In the *Principles* group, students had significantly higher scores on question #1 (p = .01) that asked students to identify the main function of the three extracts and question #4 (p = .02) that asked students to determine the main point of extract #3.

Table 3: Reading comprehension test: comparison of mean scores (both global and for individual items) assessed by means of the independent samples *t*-test

	Princ global	Elem global	Princ # 1	Elem # 1	Princ #2	Elem #2	Princ # 3	Elem #3	Princ #4	Elem #4
Mean score	2.98	2.71	0.90	0.72	0.75	0.81	0.65	0.72	0.65	0.43
Variance	0.79	0.95	0.08	0.20	0.19	0.15	0.23	0.20	0.23	0.25
Pooled variance	0.87		0.14		0.17		0.21		0.24	
t-Stat	1.53		2.52		-0.92		-0.82		2.33	
P(T<=t) two-tail	0.13		*0.01**		0.36		0.41		*0.02**	

* significant at p < .05
N = 55 in both sample groups
df = 108
t critical two-tail = 1.98

The results of the analysis of the questionnaire are shown in Table 4. For question #1, the mean scores of 1.89 (*Principles*) and 2.00 (*Elements*) indicate that both texts were considered rather difficult. Yet, as shown by question #2, both groups were fairly certain of having understood the main points of at least some of the extracts, with mean scores of 2.98 (*Principles*) and 3.05 (*Elements*) for question #2. There were no significant differences between the mean scores relating to the levels of difficulty and understanding of the two texts. For questions 3, 4 and 5 which inquired about the presence of various features of metadiscourse found in the two texts, the mean scores for both groups were rather non-committal ranging from 2.27 to 3.20, corresponding to the options *I don't know* and *somewhat*. The only significant difference between the means of the two groups was found for question #5, which inquired about the presence of framing devices. However, in this case, the *Elements* treatment group had a significantly higher mean score (p =.04), indicating that the students perceived more of this type of metadiscourse in the *Elements* extracts than in the *Principles* extracts.

Table 4: Post-reading questionnaire: comparison of mean scores on individual items assessed by means of the independent samples *t*-test

	Princ n. 1	Elem n. 1	Princ n. 2	Elem n. 2	Princ n. 3	Elem n. 3	Princ n. 4	Elem n. 4	Princ n. 5	Elem n. 5
Mean score	1.89	2.00	2.98	3.05	2.65	2.49	2.54	2.27	2.94	3.20
Variance	0.32	0.44	0.24	0.31	0.60	0.66	0.73	1.05	0.49	0.34
Pooled variance	0.38		0.27		0.63		0.89		0.42	
t-Stat	-0.92		-0.72		1.08		1.51		-2.05	
P(T<=t) two-tail	0.35		0.46		0.28		0.13		*0.04**	

* significant at p < .05
N = 55 in both sample groups
df = 108
t critical two-tail = 1.98

Discussion

The statistical analysis of the mean scores did not produce conclusive evidence that the *Principles* extracts containing more metadiscourse were more comprehensible than the *Elements* extracts with less. However, the fact that there were significant differences between the two groups for two of the four items provides some food for thought. In question #1, the *Principles* group more clearly understood the main discourse function of the three extracts. A possible explanation could be found in the more extensive use of frame markers. By signalling the author's intention, they essentially introduce the concept before proceeding to exemplify it. Thus, this discourse pattern (introduction of concept followed by an example) becomes evident to readers. In question #4, unlike *Elements* extract 3b, *Principles* extract 3a contains an introductory paragraph in which the author uses frame markers to guide and prepare the reader for the following discussion. Again, the frame markers preview the concepts of 'distant return' and 'balance of efforts and sacrifices', which are then basically reiterated in the example that follows. This provides readers with repetition and reinforcement of the content. It is also worth noting

that this particular passage makes the most use person markers, which tends to support the idea that this form of reader-writer solidarity promotes comprehension (Crismore, 1989). Furthermore, in the concluding sentence of the passage, *Principles* extract 3a contains a hedge (This illustration *may* serve…) that could function to mitigate the writer's authorial stance, thus rendering in more "reader-friendly". As Crismore and Vande Kopple (1997) found in their study, hedges generally had a positive affect also on readers' attitudes towards reading a given text. It stands to reason that readers who have a more positive attitude towards a text are also likely to understand more of what they read.

The analysis of the questionnaire revealed that both groups of students perceived the texts to be rather difficult. As regards lexis, even though some words were probably unfamiliar, there were also many Italian or Latin cognates which would presumably not present difficulties for native speakers of Italian. It should also be remembered that these students have a consolidated background in economics, and therefore probably did not encounter particular problems with the concepts presented. For this reason, this perception of difficulty was likely to be more related to the stylistic features of the two texts, rather than the content. Marshall's sentences tend to be quite long and elaborately structured with many embedded clauses. The average sentence length of the two Marshall texts was 42 words per sentence. This can be compared to 23.8 words in average modern-day educated and scientific writing and 24.9 in the average academic writing in all disciplines, according to a study on average sentence length conducted by Peck MacDonald (1990). This longer length also contributes to the relatively high level of lexical density found in the texts, which determines the density of information and thus, the complexity of a text. Halliday (1985a) measures lexical density in terms of the average number of lexical items per clause. According to these parameters, the lexical density of the Marshall texts yields a relatively high average score of 9.9, based on 100-word samples from each of the six extracts. In addition, several extracts (e.g., 2a/2b and 3a/3b) present low frequency lexical items (e.g., *sustenance*, *worthily* (2a); *forethought*, *duty* (2b); *behalf*, *efforts* (3a); *implements*, *elapse* (3b)). There is also some use of nominalisation. (e.g., "…a means to the *sustenance* of man…" = a means to sustain man (2a); "...the labour of *making* them *being* counted…" = the labour to make them is counted (3a/3b). These are all factors which tend to render a written text more difficult to understand. Moreover, the dated and literary use of some conjunctions (e.g., "The production of wealth is *but* a means…" and "…*for* if the poorer man spends money…") may have caused problems. In spite of this perceived difficulty, both groups seemed to be rather confident in their ability to understand the main points of the extracts, as indicated by the medium-high scores on questionnaire item #2 (2.98 for *Principles* and 3.05 for *Elements*). However, it is interesting to note that, unlike the *Principles* group whose two corresponding scores matched exactly (2.98 global mean comprehension score vs. 2.98 mean perceived ability score), the *Elements* group somewhat overestimated their ability (2.71 global mean comprehension score vs. 3.05 perceived ability score). At the level of speculation, it could be that the presence of metadiscourse assists readers, even if on a subconscious level, in evaluating their own understanding of texts, as previously suggested by Crismore (1989).

The outcome of the questionnaire analysis showed that the students' awareness of metadiscourse is indeed scarce. This was indicated by the generally indecisive responses to the questions about the presence of metadiscourse. Moreover, the prompting effect of the questions themselves apparently had no impact on students. This was true even for question #4 which, by means of a

note, specifically alerted students to the use of personal pronouns to create a dialogue between author and reader. Furthermore, the significantly higher score in the *Elements* group for question #5 inquiring about the presence of introductory passages (i.e., metadiscourse containing frame markers, code glosses and person markers) is quite paradoxical, since the *Elements* extracts actually have fewer of these passages than the *Principles* extracts. Apparently, these students have difficulty in conceiving of reading as interaction between reader and writer, and perhaps approach reading as a fact-finding mission only.

Concluding remarks

On a general level, the results of this study lend further support the idea that metadiscourse can have a positive influence on comprehension. The greater presence of some types of metadiscourse (e.g., frame markers, person markers and hedges) could be linked to the better performance of the *Principles* group in some of the comprehension questions. However, this interpretation needs to be couched with caution. As previously mentioned, this action research was undertaken as an exploratory initiative. It was conducted under conditions imposed by the instructional setting, and therefore presents some limitations. Although the general English language proficiency level of the students was homogeneous, it would be important to take account of possible differences in individual reading levels by means of a pre-test. Moreover, a larger-scale study with more participants, longer text treatments and more test and questionnaire items would provide more data, and therefore a more reliable picture. Nevertheless, these findings indicate that metadiscourse is a topic that deserves attention in L2 reading research, and perhaps most importantly, identifies some specific directions for further research. In fact, it would seem that certain types of metadiscourse may be more facilitating than others during reading. It would be worthwhile to set up more articulated experiments that isolate these different forms of metadiscourse in order to determine their effect on comprehension. In short, this study is best viewed as a springboard for more refined experimental work on specific aspects of metadiscourse under more controlled conditions to filter out potentially influential variables.

On a practical level, these findings may be used to determine instructional actions to be undertaken in this or similar teaching contexts. In fact, the most important contribution of this study is its classroom applications. Since students seem to have little awareness of metadiscourse and the interactional aspects of reading in general, specific instruction should be integrated into the ESP reading course to help students become more successful readers. This is a particularly crucial aspect in academic fields in which most students have scientific backgrounds and scarce knowledge of linguistic notions. From the textual viewpoint, students can be asked to identify instances of frame marker previews and then predict content. Attention to logical connectives will help students analyze the writer's line of reasoning and rhetorical strategies. Tracing endophoric markers can help students understand the macrostructure of a text and also encourage them to retain and build on newly acquired knowledge. Students can also be encouraged to notice code glosses as the writer's way of helping them to understand important new concepts. On the interpersonal level, students can look for hedges, boosters, and first person pronouns and reflect on why the writer has chosen to use these features. Attitude markers can prompt students to contribute their own ideas and thus critically react to the text. Although it may not be appropriate to burden students with the terminology of metadiscourse, teachers can

nonetheless exploit the concepts when working with students in this way. For example, a series of simple questions (e.g., *Where does the writer tell you what is coming next, Where does the writer mention other parts of the text, How does the writer tell you that he/she is not completely sure*, etc.) could be substituted. Once this type of instruction has been undertaken, it would be interesting to investigate further the impact of metadiscourse on comprehension to determine potential gains. This type of research would not only heighten our understanding of the reading process on a general level, but would also lead to more effective teaching methodologies and better criteria for the selection of materials for ESP reading instruction.

Notes

1. Apparently, the primary aim of textbook writers to guide readers and clarify content meaning has not changed much over the last hundred years or so.

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Appendix A

Comparative analysis of metadiscourse (in italics) in Marshall's *Principles of Economics* vs. Elements of Economics in Industry

Extract 1a
Principles - Book I, Chap. II, pg. 19

(Next) *We must take account* of the fact that a stronger incentive will be required to induce a person to pay a given price for anything if he is poor than if he is rich. A shilling is the measure of less pleasure, or satisfaction of any kind, to a rich man than to a poor one.

A rich man, in doubt whether to spend a shilling on a single cigar, is weighing against one another smaller pleasures than a poor man, who is doubting whether to spend a shilling on a supply of tobacco that will last him for a month. The clerk with £100 a year will walk to business in a heavier rain than a clerk with £300 a year; for the cost of a ride by tram or omnibus measures a greater benefit to the poorer man than to the richer. If the poorer man spends the money, he will suffer more from the want of it afterwards than the richer would. The benefit that is measured in the poorer man's mind by the cost is greater than that measured by it in the richer man's mind.

Extract 1b
Elements - Book I, Chap. III, pg. 21

(Again) The desire to earn a shilling is a much stronger motive to a poor man with whom money is scarce than to a rich one.

A rich man, in doubt whether to spend a shilling on a single cigar, is weighing against one another smaller pleasures than a poor man, who is doubting whether to spend a shilling on a supply of tobacco that will last him for a month. The clerk with £100 a year will walk to business in a heavier rain than a clerk with £300 a year; for if the poorer man spends the money, he will suffer more from the want of it afterwards than the richer would. The gratification that is measured in the poorer man's mind by sixpence is greater than that measured by it in the richer man's mind.

Extract 2a
Principles - Book IV, Chap. IV, pg. 173

The production of wealth is but a means to the sustenance of man; to the satisfaction of his wants; and to the development of his activities, physical, mental and moral.

But man himself is the chief means of the production of the wealth of which he is the ultimate aim: *and this and the two following chapters will be given* to some study of the supply of labour; *i.e., of the growth of population in numbers, in strength in knowledge and in character.*

In the animal and vegetable world the growth of numbers is governed by the tendency of individuals to propagate their species on the one hand, and on the other hand by the struggle for life which thins out vast numbers of the young before they arrive at maturity. In the human race alone the conflict of these two opposing forces is

Extract 2b
Elements - Book IV, Chap. IV, pg. 103

Man is the chief means of the production of that wealth of which he is himself the ultimate aim; and *it seems best to make at this stage* some study of the growth of population in numbers, in strength and in character.

In the animal and vegetable world the growth of numbers is governed simply by the tendency of individuals to propagate their species on the one hand, and on the other hand by the struggle for life which thins out vast numbers of the young before they arrive at maturity. In the human race alone the conflict of these two opposing

complicated by other influences. *On the one hand, regard for the future induces many individuals to control their natural impulses; sometimes with the purpose of worthily discharging their duties as parents; sometimes as for instance at Rome under the Empire, for mean motives.*
And on the other hand society exercises pressure on the individual by religious, moral and legal sanctions, sometimes with the object of quickening, and sometimes with that of retarding the growth of population.

forces is complicated by the influences of forethought and self control, of prudence and a sense of duty.

Extract 3a
Principles - Book V, Chap. IV, pg. 351

The first difficulty to be cleared up in our study of normal values, is the nature of the motives which govern the investment of resources for a distant return. It will be well to begin by watching the action of a person who neither buys what he wants nor sells what he makes, but works on his own behalf; and who therefore balances efforts and sacrifices which he makes on the one hand against the pleasures which he expects to derive from their fruit on the other, without the intervention of any money payments at all.

Let us then take the case of a man who builds a house for himself on land, and of materials, which nature supplies gratis, and who makes his implements as he goes; the labour of making them being counted as a part of the labour of building the house. He would have to estimate the efforts required for building on any proposed plan; and to allow almost instinctively an amount increasing in geometrical proportion (a sort of compound interest) for the period that would elapse between each effort and the time when the house would be ready for his use. The utility of the house to him when finished would have to compensate him not only for the efforts, but for the waitings.
(note)

This illustration may serve to keep before us the way in which the efforts and sacrifices which are the real cost of production of a thing, underlie the expenses which are its money cost.

Extract 3b
Elements - Book V, Chap. IV, pg. 204

Let us suppose a man to build a house for himself on land, and of materials, which nature supplies gratis, and to make his implements as he goes; the labour of making them being counted as a part of the labour of building the house. He would have to estimate the efforts required for building on any proposed plan; and to allow almost instinctively an amount increasing in geometrical proportion (a sort of compound interest) for the period that would elapse between each effort and the time when the house would be ready for his use. The utility of the house to him when finished would have to compensate him not only for the efforts, but for the waitings.

This case illustrates the way in which the efforts and sacrifices which are the Real cost of production of a thing, underlie the expenses which are its Money cost.

Appendix B

Reading Comprehension Test (correct response in italics)

Instructions: Choose the best alternative and write your answer in the boxes provided below .

1. In these three extracts, the author mainly
   A. explains economic concepts by means of exemplification.
   B. provides a detailed description of specific economic phenomena.
   C. discusses the impact of various economic trends on society.
   D. points out the positive and negative consequences of certain economic events.
2. The main point of Extract #1 is
   A. poor people tend to resist spending money in general.
   B. poor people seem to derive less pleasure from spending money than rich people.
   C. the significance that a person attributes to spending money is determined by his or her income level.
   D. the significance that a person attributes to spending money can be directly measured by the pleasures it brings.
3. The main point of Extract #2 is
   A. the production of wealth originates from the selfish nature of man.
   B. human population growth is influenced by psychological and moral factors as well as by conflicting natural forces.
   C. the presence of conflicting forces creates great difficulties in the process of human population growth.
   D. the animal and vegetable worlds are governed by the instinct to reproduce and by the laws of natural selection.
4. According to Extract #3,
   A. the utility of a self-built house cannot compensate for the excessive effort and sacrifice required to build it.
   B. the utility of a product must compensate for the effort of making it and the time that passes before being able to use it.
   C. in the context of production, both real costs and money costs tend to increase geometrically over time.
   D. when analysing the utility of the finished product, money costs are less important than real costs.

1	2	3	4

Appendix C

Questionnaire (translated version)

Instructions: Please check the option that applies to you.

	scoring area
1. How would you rate the difficulty of these extracts? ____ very difficult ____ rather difficult ____ average ____ rather easy	[ ]
2. Did you understand the main points of all three extracts? ____ yes, all of them ____ some yes, some no ____ I don't know ____ no, none of them	[ ]
3. Does the author try to guide the reader through the text with his style of writing? ____ yes, very much so ____ somewhat ____ I don't know ____ no, not at all	[ ]
4. Does the author try to create a dialogue* with the reader? ____ yes, very much so ____ somewhat ____ I don't know ____ no, not at all	[ ]
5. Do the extracts contain introductory passages that help the reader to better understand the topic? ____ yes, often ____ sometimes ____ I don't know ____ no, never	[ ]

* for example, by using pronouns like "we", "our", "us")

About the Author
Belinda Crawford Camiciottoli is an EAP/ESP lecturer at the University of Florence (Italy) Faculty of Economics. She has published articles in the areas of L2 reading instruction, modality and spoken academic discourse. In 2002, she was a Morley Scholar at the English Language Institute of the University of Michigan.